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AUTHOR	Kutschner, Ronald E.; And Others
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ABSTRACT

This report presents the results of initial research performed on the manpower impact of selected Federal grants, summarizes the status of existing study in the Bureau of Labor Statistics (BLS), and examines the manpower impact of other types of expenditures. The past study by BLS assessing employment effects of direct expenditures by the Federal government is summarized in part 1. The main focus of the study was to examine the expenditure processes and employment requirements of grant programs and one program involving transfer payments. Three major tasks or phases were involved: (1) a compilation of all Federal grants to State and local governments on a functional basis, (2) an attempt to trace Federal grants through the State level to local governments by program, and (3) manpower impact analysis case studies of the School Lunch Program, Elementary and Secondary Education Act-Title I, and the Food Stamp Program. These selected grant programs provided insights into developing manpower impacts on a program basis. Tables analyzing data are included, and an appendix listing employment statistics by industry concludes the document. (Author/MW)

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Manpower Impact of Federal Government Programs: Selected Grants-in-Aid to State and Local Governments

REPORT 424

U.S. DEPARTMENT OF LABOR
Bureau of Labor Statistics

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U.S. DEPARTMENT OF LABOR
Peter J. Brennan, Secretary

BUREAU OF LABOR STATISTICS
Julius Shiskin, Commissioner

October 1973

Preface

This report was prepared in the Bureau of Labor Statistics (BLS) Office of Economic Trends, Division of Economic Growth. The U.S. Department of Labor's Manpower Administration provided the financial support under Contract #81-11-71-18. This contract was designed to explore the manpower implications of selected Federal grants-in-aid and to review the manpower impact research in BLS to date. Dr. Howard Rosen, Director of the Office of Research and Development of the Manpower Administration provided general policy guidance. Ronald E. Kutscher, Chief, of the Division of Economic Growth, provided the direct supervision for the report's research and writing. Thomas F. Fleming, Jr., under the supervision of Richard P. Oliver, was responsible for the research on the two grant-in-aid programs and further assisted in writing the final report. Arthur E. Andreassen contributed to the section on Federal grants-in-aid. Eva E. Jacobs was responsible for the work on manpower implications of alternative types of demand and for assistance in early stages of writing the report.

The section on occupational requirements was contributed by Joel Segaloff and David Martin in the Division of Manpower and Occupational Outlook.

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Introduction

This report presents the results of initial research performed on the manpower impact of selected Federal grants and also summarizes the status of existing study in the Bureau of Labor Statistics (BLS), on the manpower impact of other types of expenditures. This work on the employment effects of grants was sponsored by the U.S. Department of Labor's Manpower Administration, which has a major responsibility for determining the manpower effects of all Federal programs.

The importance of determining these effects was emphasized recently by the President. In the *Manpower Report of the President*, 1972, he stated that "both the efficiency of our economy and the well-being of the country's workers will be served by more systematic assessment of the manpower consequences of government policies and programs."[1] Further, the President called for "the most effective mechanisms for achieving such an assessment and for assuring the findings receive appropriate attention in the Government's decision making process."

For a number of years, BLS, through use of interindustry analysis, has assessed the employment effects of direct expenditures by the Federal Government. Employment requirements have been calculated for a limited number of Federal functions, such as defense, and for nondefense functions as a total. Research on the employment requirements of selected civil functions (which are growing in magnitude) has been started recently. The past study by BLS in these areas is summarized in section one. Tracing the employment requirements of these government purchases to the direct and indirect suppliers, although time consuming, is relatively straightforward. However, in the case of many civil programs, direct purchases of goods and services represent only a small proportion of total Federal outlays, since Federal grants to State and local governments and transfer payments made directly to individuals are the major and growing part of Federal expenditures.

The purpose of the FY 1972 research was to explore the possibilities and problems of extending the manpower analysis techniques used by BLS to the latter kind of Federal expenditures. Tracing the manpower impacts of Federal grant funds involves determining the extent and kinds of expenditures ultimately made as a result by the recipient State or local government. In case these are transfer payments, which go to individuals, the manpower impacts are ultimately determined by the resultant changes in expenditures by consumers. In both cases, one must ultimately determine to what extent Federal dollars have merely been substituted for the dollars of the receiving governments or consumers. However, this analysis is beyond the scope of the present effort and must, if dealt with, be left to later research.

The main focus of this study was therefore to examine the expenditure processes and employment requirements of grant programs. In addition, one program involving transfer payments was examined briefly to determine the problems of research into this type of expenditure.

The current study, conducted under Contract #81-11-71-18, involved three major tasks or phases. First was a compilation of all Federal grants to State and local governments on a functional basis. Second, was an attempt to trace Federal grants through the State level to local governments by program. The third task involved examining three Federal programs, two of them grant programs, the third consisting largely of transfer payments.

[1] *Manpower Report of the President* (Department of Labor, March 1972).

Summary

The result of the first part of this project has already been published separately as a catalog, *A Compilation of Federal Grant Programs for State and local Governments.*[2] This document provides a brief description of grant-in-aid programs for fiscal years 1969-1972.[3] In it, each grant is grouped by function, administering agency, and recipient. The principal purpose was to provide in a single source document Federal grants-in-aid, identified both in terms of purpose and funding. This effort involved matching outlays or financial data, on the one hand, against descriptive data for Federal grants based on documents from several different sources – Office of Management and Budget, Department of Treasury, and Department of Commerce.

The second part of the project involved a detailed examination of the financial relationship between States and their local governmental units. One purpose of this phase of the research was to determine whether it would be possible to trace the Federal dollar to its ultimate spender. At the same time, the amounts and areas of funding to local governments from State governments were examined at the program level. Twenty states, which provided approximately 80 percent of all State aid in the nation to local governments were selected and pertinent data, at the most disaggregated levels available from the Government's Division of the Bureau of the Census reviewed in detail for the years 1967-70. This review indicated that no comprehensive secondary data sources exist for tracing the movement of Federal grants through the State level to ultimate local spending units, because most data sources show revenue by source but expenditures only by functional purpose and not by source. (A review appears in a later section of this report.)

An analysis of existing data on intergovernmental sources and uses of funds indicated that education, highways, and welfare constituted the activities with the largest intergovernmental expenditures. Among the different governmental units, the Federal Government spends the largest share of its funds in grant-in-aid projects on an intergovernmental basis; by contrast, local governments put almost all their monies into direct expenditures. Other differences involved emphasis and choice of financing methods among different governmental levels, as well as among the 20 States studied.

The third and final part of the FY 1972 research involved estimating, through the use of input-output tables, the direct and indirect employment requirements for selected government spending programs. Each program, at the time selected, had a relatively large amount of expenditures and rapid rates of increase. The study's approach was at a detailed program level, as typified by both the School Lunch Program and also Title I of the Elementary and Secondary Education Act. Much of the time spent on this phase was devoted to searching out program expenditure data in sufficient detail to provide a "bill of goods" for the input-output system. (The bill of goods is the distribution of program purchases by producing industries.) Once developed, these detailed expenditures were then distributed into industry sectors based on Standard Industrial Classification (SIC) Codes. Insofar as possible, information on occupational as well as industry employment impacts was developed. Both programs had a very high direct government employment impact, according to the data from the five cities selected for illustrative purposes in each case.

The experience gained in the case studies of the School Lunch Program and Title I of the Elementary and Secondary Education Act should prove useful in undertaking future manpower impact studies. The gathering of detailed expenditure data, necessary to obtain the bill of goods, provided useful insights into the problems of data collection for related programs. At the same time, it also revealed the problems of data comparability from one city to another, as well as among different levels of government. The most difficult problem encountered was the paucity of detailed employment and occupational data available from secondary sources. It would appear that additional work in the form of at least a limited survey, by means of personal interviews in several cities, may be required on at least some future grant programs selected for study, before employment and staffing patterns for the direct jobs on government payrolls can be obtained.

The case studies have provided experience in developing bills of goods for selected grant programs so that interindustry employment techniques can be meaningfully applied. The employment impacts of both the School Lunch Program and the Title I programs should be considered tentative at this point and only generally indicative of the magnitude of employment actually required, since the number of cities analyzed was relatively small. In future studies on other grant programs, an attempt will be made to provide a broader base, although this will involve a greater expenditure of manhours. The main impact of these grant programs is in

[2] *A Compilation of Federal Grant Programs for State and local governments,* Bureau of Labor Statistics, January 1972.

[3] Unless otherwise noted, all references are to fiscal years.

the direct hiring of State and local government personnel.

A major problem still exists in tracing most grant programs through from the State level to final spenders. Resolution of this difficulty will depend upon the kind of data available in each program area selected for analysis. Nevertheless, these selected grant programs provided insights into developing manpower impacts on a program basis—a beginning for a manpower assessment system that could be used to direct a response to the manpower needs of Federal programs once these needs are identified.

Section 1.
Summary of Existing Manpower Impact Research in BLS

Analytical framework

Present BLS capability. The Bureau of Labor Statistics uses an analytical framework for estimating the employment requirements of selected Federal Government programs by industry and by occupation, centering around both historical and projected input-output tables and around industry occupational tables. The input-output tables show what each industry in the economy purchases from every other industry, as well as from itself, in order to produce its own output. These tables provide an analytical tool for measuring the total effect on the production system, industry by industry, of a specified change in demand in areas such as Federal defense expenditures, private investment in office buildings, or consumer demands for durable goods. When converted through the use of industry productivity ratios, these input-output tables also yield employment requirements, industry by industry. The major contribution of such tables is that both direct and indirect employment are measured. When projected into the future, the employment requirements take into account the expected differential growth in productivity among industries.[4]

Coupled with this analytical framework of the input-output system is the BLS industry occupational matrix, which sets forth historical and projected occupational patterns. This matrix provides information on the distribution of each industry's total employment among 160 occupations. When projected, this occupational matrix takes into consideration the secular trends in the occupational composition of each industry's employment. Used in conjunction with the input-output tables, information can be derived on the program implications for output by industry, employment by industry, and occupational requirements.[5]

In order to use this system to estimate the manpower impact of Federal programs, the program expenditure detail has to be converted into an input-output bill of goods. Direct Federal purchases are more readily distributed into purchases from industry and compensation to Federal employees than are grants to State and local governments, which, in turn, may be traced more readily than expenditures by recipients of Federal transfer payments. The effect of establishment of standards or regulatory policies, which also may have important manpower implications, is probably the most difficult to measure. Additional difficulties arise in the assessment of new programs, since no past expenditure data may be completely appropriate for developing the required bills of goods.

The input-output system provides two approaches to viewing the manpower impact of Federal programs. One approach gives a look at the absolute amount of employment and what occupations are required in each industry to meet the demands of a particular government policy or program. The manpower impact may vary over a period of time depending on expenditure levels as well as the phasing of materials and services purchased year by year. For example, in the early years of a particular program, the emphasis may be on capital expenditures; as the program evolves, by contrast, a larger proportion of total dollars may be spent on services and operational outlays. Analyzing data of this type over time could prove useful in matching the occupational mix required for a specific program level with the prospective supply of appropriately trained or skilled employees. This type of analysis, then, pulls together the demands on the economy by industry, translates them into employment requirements by industry and ultimately into occupational requirements.

The second approach, on the other hand, is to compare the relative employment generating characteristics of various types of Federal programs or policies. For this purpose, the best method is to use a common base of measurement. For example, the manpower impact of alternative policies may be stated in terms of employment per some common denominator such as a million or a billion dollars of expenditure. The differences that various demand categories or programs will produce in manpower impact will reflect the pattern of expenditures or inputs as well as the relative productivities of the industries from which the goods and services are purchased. These factors may then be applied, for analytical purposes, to any assumed combination of expenditures and program levels.

Limitations. Several qualifications should be noted in respect to use of the above analytical methods. First, the impact of productivity must be clearly kept in mind

[4] For a fuller discussion of an interindustry employment table see Jack Alterman "Interindustry Employment Requirements," *Monthly Labor Review*, July 1965, pp. 841-850.

[5] *Tomorrow's Manpower Needs. Vol. IV Revised*, Bulletin 1737 (Bureau of Labor Statistics, 1971). A discussion of techniques and data used in developing an industry occupational matrix is contained in this document.

since a comparison between two periods of employment generated by a specific final demand component reflects not only changes in level of demand, but changes in productivity in the industries from which the purchases are made. Therefore, rising productivity coupled with fixed demand will result in less employment than if it were coupled with rising demand. If, as has usually been the case, however, demand and productivity have both been rising, the influence of the former will tend to be offset by that of the latter.

In estimating the employment required for a given type of demand, distinction should be drawn between the average employment required in an industry to produce a dollar's worth of final demand, and the employment generated by the program's additional dollar of demand. The figures used in this report refer only to average impact and not to the incremental impact of a change in demand or in a Federal program. In determining the incremental impact of a program, much depends on the state of the economy and the point in the business cycle at which the addition to demand is to be made, as well as the actual relationship of the individual producing sector to the business cycle. If the economy is operating below capacity, additional demand may be satisfied without adding any workers to the work force, or any new capital investment. In such a case, a significant proportion of the increase in demand would be satisfied by higher productivity. If, however, the economy or industry is producing close to capacity, an increase in demand may be met by a proportionate increase in employment or by a large price increase instead of a change in employment, because various elements of the economy would be competing for scarce resources. Since information on incremental or marginal productivity ratios is currently not available, it is not possible to specify how many additional workers would be hired as a result of a specified increase in final demand. The difference between average and marginal impact on employment is significant both for individual industries and for the entire economy. Even for industries, the averages are only approximately representative, since differences in product-mix and establishment size would be involved in a specified demand change.

The dispersion of the impact on the employment and occupational mix required by a government program can alter its manpower implications. If a $2 billion purchase by the Federal Government is spread over many individual establishments, or local governments throughout broad geographic areas, then the increment to each may be readily absorbed without additions to employment and will only result in increased productivity. However, if an equal amount is spent in one establishment, in one industry, or in one geographic area, then the relative magnitude of the increment may be such as to require additional employment.

Another difficulty in manpower assessment arises from the inability to determine whether a proposed expenditure by the Federal Government is really an addition to total expenditures. For example, grants to State and local governments may, in part, be substitutions for revenues that would otherwise be obtained from State and local government sources. In the case of transfers, also, Federal outlays do not necessarily lead to additional purchases. Medicare payments may in part substitute for purchases that otherwise would have been made by individuals from their private funds.

Another limitation exists in the present BLS approach to manpower impact analysis. Manpower requirement estimates cover only the direct employment in the industries producing the products purchased for a particular activity or program, (e.g., defense purchases) as well as the indirect labor required to produce the materials, parts, etc., embodied in these final products. Omitted are the multiplier and accelerator effects, that is, the additional jobs generated as workers spend their earnings for consumer goods and services and businessmen spend for plant and equipment to meet increased demand for their goods or services.

In spite of these qualifications and limitations, no doubt exists that the available estimates of average employment requirements can still provide useful information to aid in evaluating the manpower impact of Federal activities. In recent years, BLS has prepared several studies showing these requirements for various kinds of final demand, which although covering broad categories, are still useful in indicating orders of magnitude in each of the various types of expenditures. That approach is expanded in this study of Federal grants-in-aid, by translating the resulting State and local government purchases into bills of goods for two selected grant programs.

Past BLS Manpower Impact Analysis. In the past, BLS, through its interindustry employment and occupational models, has conducted extensive research into the employment generated by the purchases of the Federal Government and other categories of final demand. All the analysis regarding the Federal sector has been based upon purchases of goods and services, and grant expenditures or transfer payments have not been examined. However, since grants and transfers ultimately become State and local government expenditures and personal consumption, past work on these purchasing sectors will contribute to our assessment of these other kinds of Federal expenditures. Similarly, past work on construction manpower requirements, by major type of

project, contributes to our analysis of construction grants by the Federal Government.

The categories of demand and their employment requirements covered by BLS in the past, are as follows:

By component of demand

- Federal Government
  - Defense
  - Nondefense
- State and local government
  - Education
  - Health, welfare and sanitation
  - Other, State and local
- Exports
- Personal consumption expenditures
- Producers' durable equipment

By type of construction

- Education
- Hospitals
- Sewers
- Highways
- Single family residential
- Public housing
- Nonresidential structures
- Public utilities
- Corps of Engineers projects

The employment impact of alternative demand patterns

Government. Government demand components included in the previous listing cover a wide variety of purchases of goods and services. For each category of original government demand, the employment generated in the private sector by the government purchases has been computed. Estimates of the direct government employment required for the activity were then added to the generated employment in the private sector. Thus, the total employment shown (table 1) as generated by the various government activities covers both private and public employment, with private employment distributed by industry.

In 1971, in terms of Federal Government expenditure, the total manpower requirements generated by a billion dollars of defense purchases (1971 prices) was 87,600. This impact included both Armed Forces personnel and civilian employees of the Department of Defense—approximately 53,100 jobs in the public sector and 34,500 jobs in the private sector (tables 1 and 2). In this study's defense category, the "total" purchases of the Department of Defense have the relative proportions of personnel compensation and of material procurement that existed in 1971. In the future, this ratio may change as numbers in the Armed Forces are reduced.

In 1971, for every billion dollars of State and local government expenditures, about 100,000 government and private jobs are generated. Most of these are government jobs, because of the relatively small amount of purchases for goods and services.

Table 1. Total manpower requirements generated per billion dollars of selected expenditures, 1971
(In thousands)

Sources of expenditures	Total employment generated
By component of demand:	
Federal Government, total defense[1]	87.6
State and local government (including construction)	100.7
State and local education (including construction)	103.7
Exports	63.6
Personal consumption expenditures	70.7
Producers' durable equipment	62.2
By type of construction:	
Education	51.1
Hospitals	55.0
Sewers	49.7
Highways	56.4
Single-family residential	63.8
Private nonresidential buildings	54.7

[1]Includes armed forces and civilian employment in the Department of Defense.

NOTE: Manpower requirements are in terms of direct and indirect employment impact. The selected expenditures are in 1971 prices.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics.

Education. It should be noted that the direct government education employment impact encompasses more than teachers. Operation of a local school system or institutions of higher education generates a large number of supporting personnel; administrators, health, recreational and clerical positions, as well as plant operation and maintenance employees and food services and transportation positions. At the elementary and secondary level, instructional personnel account for approximately two-thirds of total employment, while at institutions of higher education run by State and local governments the proportion is almost exactly reversed – roughly two-thirds of the employees are not classified as instructional personnel.

Construction. In construction connected with a public project, the activity is generally not performed by the government itself, but is purchased by the government or is a response to other policies of the government, such as grants or loan guarantees. In the case of residential construction, the government stimulation may be indirect as a result of efforts to lower interest rates through fiscal and monetary policy. To estimate the

Table 2. Manpower requirements per billion dollars of selected types of expenditures by major sectors, 1971

Sector	Defense expenditures		Personal consumption		Exports	
	Total jobs	Percent distribution	Total jobs	Percent distribution	Total jobs	Percent distribution
Total	87,591	100.0	70,724	100.0	63,647	100.0
Government	53,095	60.6	—	—	—	—
Private sector						
Agriculture, forestry and fisheries	753	0.9	4,330	6.1	7,291	11.5
Mining	479	0.5	516	0.7	1,328	2.1
Construction	1,449	1.7	1,031	1.5	699	1.1
Manufacturing	19,930	22.8	15,423	21.8	29,384	46.2
Transportation, communications and public utilities	3,444	3.9	4,505	6.4	7,816	12.3
Trade	2,097	2.4	20,968	29.6	6,236	9.8
Finance, insurance and real estate	738	0.8	5,220	7.4	1,820	2.9
Services	5,606	6.4	18,731	26.5	9,073	14.3

NOTE: These categories of demand in 1971 prices, are a representative selection only. Similar data are available for the other categories of demand shown in table 1. These data also are available with the manpower requirements shown separately for 80 industries.

SOURCE: Bureau of Labor Statistics.

total employment, the direct employment required in the construction industry is added to the indirect employment generated by purchases of materials and services used in completing the construction. For all practical purposes, the employment is generated almost entirely in the private sector.[6]

The various types of construction, however, generate rather similar amounts of total employment per billion dollars of purchases, except for residential construction which entails somewhat higher employment numbers (table 1). However, the relationship between the amount of direct and indirect employment generated varies among the types of construction. In both residential and educational building construction, more indirect jobs are generated than direct. Highway construction has relatively more than average impact on the mining sector, primarily in production of sand and gravel; by contrast, the indirect employment generated in manufacturing by highway construction is lower. Residential building construction shows higher than average purchases from the trade sector because the large number of small builders active in this field traditionally buy more supplies from wholesalers and less directly from manufacturers.

Other demand categories. The average number of jobs generated per billion dollars for most other final demand categories (such as producers' durable equipment and exports) falls within a fairly narrow range of about 62,000 to 64,000 jobs (table 1). Personal consumption expenditures, however, do generate a somewhat higher total per billion dollars because of involving heavy demand for trade and services, industries of relatively low productivity.

Table 1 provides the manpower requirements (employment impact) per billion dollars in 1971 which were estimated for Federal and State and local government, construction and "other" demand categories. Tables 2 and 3 show the translation of the employment requirements of selected categories – defense, personal consumption expenditures, and exports, into employment impact by major industrial sector and major occupational group.

Past BLS work on manpower impacts may be summarized as follows:

1. Each year, BLS prepares estimates of employment resulting from government purchases of goods and services, which are shown separately for defense and nondefense Federal sectors and for combined State and local government purchases.[7] These estimates provide only the total manpower impact of government purchases, and therefore, are too aggregative to be helpful for most policy purposes. Moreover, at the present time, they do not show the manpower impact of these purchases by industry or by occupation.

2. The defense sector of Federal purchases has been examined in more detail and the separate periodic studies of employment requirements resulting from changing defense expenditures provide considerably more detail. These analyses show the impact of defense expenditures on specific industries (table 2) and occupations (table 3) and relate this employment to total

[6] Some government employment is involved in planning, engineering, site acquisition, and supervision of contract performance. The number of employees involved, however, is unknown but is believed too small to affect materially the construction job impact.

[7] *Manpower Report of the President* (Department of Labor, March 1972), p. 284, contains the latest estimates.

Table 3. Manpower requirements per billion dollars of purchases by major occupational groupings, 1971

Occupational group	Jobs created by type of expenditure (distribution by amounts)				
	Defense –			Personal consumption	Exports
	Total	Government	Private		
Total	87,600	53,000	34,600	70,700	63,600
Armed Forces	39,420	39,420	–	–	–
Professional, technical and kindred	7,850	2,870	4,980	6,999	5,660
Managers, officials and proprietors	3,760	1,310	2,450	8,343	5,510
Clerical and kindred workers	9,000	3,470	5,530	12,726	10,210
Sales workers	1,020	50	970	5,939	2,460
Craftsmen, foremen and kindred	9,780	3,000	6,780	6,929	9,790
Operative and kindred workers	11,920	1,380	10,540	12,373	17,550
Service workers	1,840	600	1,240	10,959	2,760
Laborers, except farm	2,250	900	1,350	2,757	3,300
Farmers and farm workers	760	–	760	3,676	6,360
	Percent distribution				
Total	100.0	100.0	100.0	100.0	100.0
Armed Forces	45.0	74.4	–	–	–
Professional, technical and kindred	9.0	5.4	14.4	9.9	8.9
Managers, officials and proprietors	4.3	2.5	7.1	11.8	8.7
Clerical and kindred workers	10.3	6.5	16.0	18.0	16.1
Sales workers	1.2	.1	2.8	8.4	3.9
Craftsmen, foremen and kindred	11.2	5.7	19.6	9.8	15.4
Operative and kindred workers	13.6	2.6	30.5	17.5	27.6
Service workers	2.1	1.1	3.6	15.5	4.3
Laborers, except farm	2.6	1.7	3.9	3.9	5.2
Farmers and farm workers	.9	–	2.2	5.2	10.0

NOTE: Demand is in terms of 1971 prices; the numbers are rounded and may not add up to totals. Additional occupational detail available upon request.

SOURCE: Bureau of Labor Statistics

employment in each industry. These studies have clearly shown the impact on major defense oriented industries of the increased expenditures for the Vietnam War and the effect of the cutback on the defense oriented industries and occupations.[8] The effect on indirect and supplying industries is shown also.

3. State and local government purchases of goods and services in which Federal grants are embedded have also been studied. Three functional areas can be separated: education; health, welfare, and sanitation; and civilian safety. However, this level of detail (with the possible exception of education) still appears too aggregative to reflect much impact from a specific Federal program or policy.[9]

[8] Richard P. Oliver, "Employment Effects of Reduced Defense Spending," December 1971, pp. 3-11, *Monthly Labor Review*, and Richard Dempsey and Douglas Schmude, "Occupational Impact of Defense Expenditures," December 1971, pp. 12-15, *Monthly Labor Review*.

4. Other employment impact studies have covered exports, personal consumption expenditures, and a number of in-depth research projects on construction labor requirements.[10]

[9] Thomas F. Fleming, Jr., "Manpower Impact of State, local government purchases," June 1973, pp. 33-39, *Monthly Labor Review*, provides estimates of the employment impact of State and local governments for three major functions.

[10] See Charles T. Bowman, "Report on Employment Related to Exports," *Monthly Labor Review*, June 1969, pp. 16-20; Stephen Cochran and Donald P. Eldridge, "Employment and Personal Consumption Expenditures," *Monthly Labor Review*, March 1972, pp. 39-47. The most recent studies on construction labor requirements have included "Labor Requirements for Public Housing" BLS Bulletin 1775, and *"Labor and Material Requirements for Construction of Private Single-Family Houses,"* Joseph T. Finn, April 1972, *Monthly Labor Review*, pp. 40-42.

Section 2. New Manpower Impact Research

Federal expenditures in perspective

During the decade of the 1960's, Federal spending more than doubled from a level of $91.3 billion, at the start, to $212.4 billion by FY 1971, or an 8 percent average annual rate of increase per year. An accelerated rate of increase brought the proposed level of Federal expenditures in 1972 to $237.8 billion and a further increase of nearly 8 percent to $255.9 billion was proposed for 1973.

During this period, direct purchases of goods and services by the Federal Government became less important as a percentage of total Federal expenditures. In 1960, purchases of goods and services accounted for almost 58 percent of all Federal monies. By 1970, this proportion was down to nearly 50 percent and by 1971 was less than 45 percent of total Federal spending; a further drop was anticipated, to less than 42 percent, in FY 1973 (table 4). This was principally because of the far smaller share that defense purchases have been claiming of total Federal expenditures. Twelve years ago, defense purchases accounted for almost half of all Federal dollars while, in 1973, defense is expected to represent only 30 percent of Federal spending (in current prices).

In calendar 1971, BLS estimates put the total employment in both the public and private sectors resulting from government purchases of goods and services (Federal, State, and local) at approximately 23 million jobs.[11] Roughly two-fifths of these jobs were generated by the Federal Government, primarily by defense spending. The defense sector accounted for more than 6 million jobs – 2.2 million in private industry, another 3.8 million civilian Department of Defense (DOD) employees and Armed Forces personnel. Nondefense and space programs accounted for approximately 1.6 million government employees. Further, another 0.8 million employees worked in government enterprises. The estimated private sector employment generated in 1971 by outright Federal nondefense purchases of goods and services – not grants or transfer payments – amounted to 0.7 million jobs.

However, the big increases in Federal spending have occurred in the other categories of expenditures – not in purchases (tables 4 and 5). Domestic transfer payments climbed from $20.6 billion in 1960 to $54.9 billion a decade later and was up to $77.0 billion by FY 1972. As a percentage of total Federal expenditures, domestic transfer payments increased their share from less than 23 percent in 1960 to 27.8 percent in 1970, and were 32.4 percent of the proposed FY 1972 budget and were expected to increase further to 33 percent with FY 1973 outlays. The expansion over this time span resulted from a more than quadrupling of retirement and disability transfers and the introduction of new programs such as food stamps and hospital and medical insurance. Transfer payments in the latter two areas alone were rapidly building to nearly 5 percent of all Federal expenditures in the early seventies.

At the same time that the Federal Government was increasing the funds that it put into the hands of the people through an expansion of transfer payments, it was also building up the amount of funds allocated to State and local governments. Grants-in-aid provided the principal conduit for this policy. Total grants-in-aid more than tripled between 1960 and 1970, and seem headed for nearly a doubling again by the end of FY 1973. With the myriad of new grant programs which have been enacted since 1960, grants-in-aid as a proportion of total Federal spending have moved from 7.4 percent in 1960 to 11.5 percent in 1970 and from there to the point where they now represent more than 15 percent of all Federal expenditures which were proposed for FY 1973.

The employment effects of Federal grants and transfer payments have not been measured in the past by BLS.[12] This report represents initial efforts to trace the money flows of expenditures of this type and to determine their manpower impacts. The manpower effects are assessed within the interindustry analytical framework by taking Federal grants to States and developing bills of goods for State and local government functions.

This project by BLS on the manpower implication of Federal grants-in-aid involves three phases. The first is a summary of all Federal grant programs. The second is a survey of available data to see if a similar summary could be prepared for State grants to local governments. The

[11] *Manpower Report, op. cit.* p. 284.

[12] The National Planning Association in *Priorities for Research in Anticipating the State-Local Government Employment Resulting from the Federal Grants-in-Aid System* derive a crude order of magnitude estimate of 1.2 million jobs in State and local government supported by Federal grants-in-aid to States and localities. This estimate was derived by assuming that if grants accounted for a given percent of a State and local expenditure on a function such as highways, then the Federal grants could be assumed to support the same proportion of employment in that function.

Table 4. Federal Government expenditures, national income accounts basis, selected fiscal years

(Billion dollars in current prices)

Component of expenditures	Actual				Estimated		Percent distribution					
	1960	1965	1970	1971	1972	1973	1960	1965	1970	1971	1972	1973
Total	91.3	118.5	197.2	212.4	237.8	255.9	100.0	100.0	100.0	100.0	100.0	100.0
Purchases	52.7	64.4	99.2	95.3	103.0	107.0	57.7	54.3	50.3	44.9	43.3	41.8
Defense	45.0	48.9	77.9	73.0	73.3	76.7	49.3	41.3	39.5	34.4	30.8	30.0
Nondefense	7.8	15.5	21.3	22.4	29.7	30.4	8.5	13.1	10.8	10.5	12.5	11.9
Transfer payments	22.4	30.5	56.9	69.9	79.8	87.4	24.8	25.7	28.9	32.9	33.6	34.2
Domestic	20.6	28.3	54.9	67.5	77.0	84.5	22.6	23.9	27.8	31.8	32.4	33.0
Retirement and disability	13.1	20.2	35.5	42.2	47.3	54.1	14.3	17.0	18.0	19.9	19.9	21 1
Hospital and medical insurance	0	0	6.8	7.5	8.5	9.9	–	–	3.4	3.5	3.6	3.9
Food stamps	0	0	.6	1.5	2.0	2.3	–	–	.3	.7	.8	.9
Veterans insurance and benefits	4.4	4.7	6.9	8.0	9.1	9.4	4.8	4.0	3.5	3.8	3.8	3.7
Unemployment benefits	2.7	2.5	3.0	5.7	7.1	5.7	3.0	2.1	1.5	2.7	3.0	2.2
Other	0.4	.8	2.1	2.6	3.1	3.3	.4	.7	1.1	1.2	1.3	1.3
Foreign	1.8	2.2	2.0	2.4	2.8	2.9	2.0	1.9	1.0	1.1	1.2	1.1
Grants-in-aid	6.8	10.9	22.6	27.0	36.2	40.6	7.4	9.2	11.5	12.7	15.2	15.9
Income security	2.3	3.2	5.7	8.1	11.2	10.8	2.5	2.7	2.9	3.8	4.7	4.2
Health	0.2	.7	4.1	4.6	5.9	5.3	.2	.6	2.1	2.2	2.5	2.1
Education	0.5	1.1	4.3	5.0	6.0	7.1	.5	.9	2.2	2.4	2.5	2.8
Transportation	3.0	4.1	4.6	4.9	5.1	5.5	3.3	3.5	2.3	2.3	2.1	2.1
Community development	0.1	.4	1.7	1.9	2.1	2.8	.1	.3	.9	.9	.9	1.1
Other—[1]	0.8	1.5	2.1	2.4	5.8	9.1	.9	1.3	1.1	1.1	2.4	3.6
Net interest	7.0	8.5	14.0	14.2	13.4	14.8	7.7	7.2	7.1	6.7	5.6	5.8
Subsidies less current surplus of government enterprises	2.3	4.1	4.6	5.9	5.4	6.0	2.5	3.5	2.3	2.8	2.3	2.3

[1] Includes revenue sharing proposals beginning FY 1972.

SOURCE: *Special Analyses, Budget of the United States Government,* various years.

Table 5. Federal Government expenditures, average annual rates of change, selected fiscal years

Federal Government expenditures	1960-65	1965-70	1970-71	Proposed	
				1971-72	1972-73
Total	5.4	10.7	7.7	12.0	7.6
Purchases	4.1	9.0	-3.9	8.1	3.9
Defense	1.7	9.8	-6.3	0.4	4.6
Nondefense	14.7	6.6	5.2	32.6	2.4
Transfer payments	6.4	13.3	22.8	14.2	9.5
Domestic	6.6	14.2	23.0	14.1	9.7
Retirement and disability	9.0	11.9	18.9	12.1	14.4
Hospital and medical insurance	—	—	10.3	13.3	16.5
Food stamps	—	—	150.0	33.3	15.0
Veterans insurance and benefits	1.3	8.0	15.9	13.8	3.3
Unemployment benefits	-1.5	3.7	90.0	24.6	-19.7
Other	14.9	21.3	23.8	19.2	6.5
Foreign	4.1	-1.8	20.0	16.7	3.6
Grants-in-aid	9.9	15.7	19.5	34.1	12.2
Income security	6.8	12.2	42.1	38.3	-3.6
Health	28.5	42.4	12.2	28.3	-10.2
Education	17.1	31.3	16.3	20.0	18.3
Transportation	6.4	2.3	6.5	4.1	7.8
Community development	32.0	33.6	11.8	10.5	33.3
Other[1]	13.4	7.0	14.3	141.7	56.9
Net interest	4.0	10.5	1.4	-5.6	10.4
Subsidies, less current surplus of government enterprises	12.3	2.3	28.3	-8.5	11.1

[1] Includes revenue sharing proposals beginning FY 1972.

NOTE: Rates of interest are rates between terminal years.

SOURCE: *Special Analyses, Budget of the United States Government,* various years.

third is an attempt to trace the monetary and employment impacts of two selected grant programs and one transfer payment program.

Phase 1: Inventory of Federal grant programs

The first step in studying the employment impact of Federal grants to State and local governments required construction of a data base from which the rest of the investigations would proceed. To be most useful, this base was to contain both a description of the various grant programs and economic data which would be incorporated into the employment model. Deriving a base to meet these two objectives presented certain problems which could not be completely solved and resulted in some compromises. For example, the employment model uses economic data, which are based on national income concepts, while the best available data and descriptions of grant programs utilize Federal Budget concepts. Therefore, it was necessary to construct the base using the Federal Budget sources and then to bridge the differences in the economic data.

The initial part of the project was a compilation of Federal grant programs combining descriptive data at the most disaggregated level with the most useful expenditure data. An examination of information compiled by the Department of Treasury, the Bureau of the Census, the Bureau of Economic Analysis, and the Office of Management and Budget led to the use of the latter's material. This material was comprised of the *Catalog of Federal Domestic Assistance* and data for the chapter on Federal aid to States in the yearly publication *Special Analysis – Budget of the United States.* The *Special Analysis* presents fiscal year expenditures for Federal aid to States by budget appropriation number. The *Catalog of Federal Domestic Assistance* lists all Federal aids to the domestic population (not only aid to States) by budget appropriation number and provides descriptive material along with fiscal year obligations for grant programs.

The problems in using these two sources result from the lack of complete comparability, both with each other and with the data needs of the model. The outlays data in the *Special Analysis*, very similar to national income concepts, offered a starting point. The best descriptive material is in the *Catalog*, but the economic data in this document are presented as fiscal year obligations, which differ from outlays in the timing of the transaction. (An obligation results when the expenditure is contracted, while an outlay results when the payment is actually made). The *Catalog* includes more than grant programs alone and its use requires a selection process. Both the *Special Analysis* and the *Catalog* use budget appropriation numbers, so a match between these two sources is possible. A budget appropriation number is an identification number given by the Office of Management and Budget to all agencies which incur

obligations in the name of the Federal Government. Each agency has its own number which is coded to include such information as Department and function.

The result of the merger of these data is the BLS publication *A Compilation of Federal Grants to State and Local Governments*, which groups grants both by major budget functions and by Departments and agencies involved, within that function. Associated with each agency are the grant programs located in the *Catalog*, along with the obligation and outlay data for the 4 fiscal years 1969 through 1972. This "compilation," therefore, provides in a single document both a description of a grant and its amount so as to expedite the selection of grant programs for analytical purposes.

In general, grants considered on a functional basis have displayed an uneven growth pattern reflecting changing needs (table 6). Commerce and Transportation, which once accounted for more than one-third of total grants, was down to 14 percent in FY 1972 as a result of the leveling off of the Federal Interstate Highway Program. Although still declining relative to total grants since 1964, this category is resuming growth again as a result of new programs like Urban Mass Transportation, the Appalachian Regional Commission, and the Airport Modernization Program.

The largest single category of grants was for income security purposes. Here, the total of $2.8 billion in grants in 1962 has grown to more than $11.2 billion 10 years later, or at an average annual rate of increase of 15 percent. Nevertheless, because of the burgeoning of other grants, this category's share of total grant dollars actually fell from approximately 35 percent to less than 30 percent in the period. Grants for health, community development and housing, natural resources, and education and manpower all had average annual rates of growth in excess of 20 percent a year during the 1962-72 span. By 1972, education and manpower grants had moved into second place behind income security, accounting for more than 15 percent of all grant monies. Health almost tripled its proportion of grant dollars and by 1972 had become the fourth largest area at 11.9 percent, not too far behind the Commerce and Transportation grants area.

Phase 2: State grants to local government

The second phase of this project examined the financial relationships between States and their local governments, in an effort to further trace the flow of grant funds. Specifically, this aspect of the BLS effort attempted to determine (1) whether it is feasible to trace Federal grant money through State governments to the final spender and (2) the extent of payments made to local governments for particular functions.

It was determined that no single secondary data source exists to trace Federal grants through States to the local government unit ultimately spending the money. While this information may be available for particular programs, it can be uncovered only by considerable research in particular program areas and probably then only through a very extensive and comprehensive primary data collection effort.

On the other hand, some information was found on the second objective. Data on the total amount of State funds transmitted to local governments are available from the Bureau of the Census on a functional basis. However, the sources of these funds cannot be distinguished. They generally include not only Federal

Table 6. Federal grants to State and local governments, by function, 1962 and 1972

(Current prices)

Function of grant	Distribution by amount (Millions of dollars)		Average annual rate of change[1] 1962-72	Percent distribution	
	1962	Preliminary, 1972		1962	Preliminary, 1972
Total	7,893.1	38,288.2	17.1	100.0	100.0
1. Income security	2,769.7	11,240.2	15.0	35.1	29.4
2. Education and manpower	853.9	5,866.1	21.0	10.8	15.3
3. Commerce and transportation	2,841.6	5,525.8	6.9	36.0	14.4
4. Health	321.6	4,542.2	30.0	4.1	11.9
5. General revenue sharing	—	4,019.0	—	—	10.5
6. Community development and housing	353.7	3,691.7	26.0	4.5	9.6
7. Natural resources	124.9	1,532.4	27.0	1.6	4.0
8. General government	58.0	1,056.4	34.0	.7	2.8
9. Agriculture and rural development	537.8	738.6	3.2	6.8	1.9
10. National defense	16.8	42.9	9.8	.2	.1
11. Veterans benefits	8.5	25.9	11.8	.1	.1
12. International affairs	6.6	6.0	-1.0	.1	([2])

[1] Compound interest rate between terminal years.

[2] Less than 0.05 percent.

SOURCE: *Special Analyses, Budget of the United States Government*, various years.

grants but also State grants, shared taxes, payments for services performed on a cost sharing basis and intergovernmental payments in lieu of taxes, or cases where the State collects revenue for the local government. This confusion of fund sources, of course, prevents tracing Federal funds to local governmental units.

However, the information does permit determination of amounts received by local governments for particular functions. Unpublished Bureau of the Census data on intergovernmental payments were examined for a 4-year span, 1967 through 1970. Twenty States which accounted for approximately four-fifths of the total State payments to local governments were selected for study.

These data were obtained at the most disaggregated level of functional detail available from Census worksheets. There were 22 functional categories and as many as two dozen identifiable areas of expenditures for each function. For analytical purposes the expenditure data were then aggregated to the 22 functional categories, by State, in order to reveal for which functions and in what amounts State governments provided funds to local governments. The same data were also examined on a functional basis to see which States supported which functions by a larger or smaller degree through intergovernmental expenditures.

Sources of funds. When total government expenditures are examined in terms of the final spender, the Federal Government accounts for more than 55 percent of direct expenditures (table 7). Local governments represent nearly 28 percent of the total with State governments providing less than 17 percent of direct expenditures. If government spending is viewed in terms of financing, however, rather than final spending, a different picture emerges. From this perspective, intergovernmental funding is viewed as an expenditure of the originating governmental level and represents more a source-of-funds picture of financing. On this basis, the Federal share of expenditures increases to more than 62 percent of the total and State governments contribute 19.4 percent, or slightly more than they did on a direct expenditure basis. Conversely, local governments account for about 18 percent of expenditures on a financing source basis – sharply less than on a final spender basis.

Expenditures by functions. The three functions with the largest intergovernmental expenditures are education, highways, and welfare. In each of these three areas, the Federal Government spends by far the largest share of its funds on an intergovernmental basis (table 8). By the same measure, local government expenditures are nearly all direct with only a small amount of intergovernmental expenditures made. The role of State governments varies, however, with their intergovernmental expenditure ranging from a low of 18.1 percent on highway programs to 55.4 percent on educational ones.

In dollar terms, the Federal Government spends the greatest amount of its intergovernmental funds for welfare, secondly, education and thirdly, highways. State governments, on the other hand, devote their largest amount of intergovernmental resources to education, then welfare and lastly, highways. Nevertheless, educational expenditure remains to a sizable extent the responsibility of local governmental units.

These data indicate that local governments finance the greater portion of educational expenditures out of their own funds, despite substantial contributions by State governments. The Federal contribution, even with the assumption that it is all passed through and was included in the State payment, still provides only 15 percent of the total local expenditure. It also is evident that for welfare and highways, considerable direct expenditures are made by states since their payments to local governments are lower than the Federal payments made to them.

Intergovernmental expenditures for selected States. The intergovernmental expenditures of the 20 largest State governments in the 4 years selected for study by BLS conformed largely to the national pattern with education, highways, and welfare usually the functions with the greatest amount of State support.[13] The other single

[13] The 20 States are Alabama, California, Florida, Georgia, Illinois, Indiana, Maryland, Massachusetts, Minnesota, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Texas, Virginia, Washington, and Wisconsin.

Table 7. Government expenditures by spender and source, 1969-70

(Current dollars)

Level of government	Expenditures by final spender		Expenditures by financing source	
	Amount (Millions of dollars)	Percent	Amount (Millions of dollars)	Percent
Total	$332,985	100.0	$332,985	100.0
Federal	184,933	55.5	208,190	62.5
State	56,163	16.9	64,665	19.4
Local	91,889	27.6	60,130	18.1

SOURCE: *Governmental finances 1969-70,* U.S. Bureau of Census, series GF 70-No. 5, U.S. Government Printing Office, Washington, D.C. 1971.

Table 8. Federal, State, and local government expenditures by selected functions, 1969-70
(Amounts in millions of current dollars)

Expenditures	Total direct expenditures	Federal		State		Local	
		Amount	Percent	Amount	Percent	Amount	Percent
		Education					
Total		8,897	100.0	30,865	100.0	38,970	100.0
Intergovernmental		5,844	65.7	17,085	55.4	32	0.8
Direct	55,771	3,053	34.3	13,780	44.6	28,938	92.2
		Highways					
Total		4,927	100.0	13,483	100.0	5,426	100.0
Intergovernmental		4,608	93.5	2,439	18.1	42	0.8
Direct	16,746	319	6.5	11,044	81.9	5,383	99.2
		Welfare					
Total		10,411	100.0	13,206	100.0	6,700	100.0
Intergovernmental		7,574	72.7	5,003	37.9	224	3.3
Direct	17,517	2,837	27.3	8,203	62.1	6,477	96.0

SOURCE: *Governmental finances, 1969-70*, U.S. Bureau of the Census, series GF 70—No. 5; U.S. Government Printing Office, Washington, D.C., 1971.

category with a significant allocation of intergovernmental funds, especially by 1970, was the general financial support of local governments by the states. Wide variations, however, were noted in some of the 20 States reviewed as to the amount of support various functions at the local governmental level received. Although no rigorous analysis was feasible, at this point, of the reasons for this disparity, it may frequently be caused by direct State government expenditures in these instances, which would not show up as an intergovernmental payment. For example, in 1967, Massachusetts apportioned 38.0 percent of its total intergovernmental expenditures to local governments for welfare. By 1970, the share had fallen to 4.2 percent – the State had directly assumed much of the welfare expenditures.

Nearly all 20 of the States studied provided, in addition to the three major functions – education, highways, and welfare – intergovernmental payments to local governments for hospitals and libraries. Two other functions supported by a rather large number of States were air transportation and health, although the dollar amounts involved were not very large. Other government support, for which all 20 States also provided intergovernmental funds, includes project grants for civil defense and for a variety of miscellaneous "other" local efforts. Initially, the tabulations identified 22 separate functions in the various States selected. However, for the purposes of comparability across State lines it was necessary to consolidate these functions to a much smaller number in the final tabulations.

The research for this aspect of the study also revealed – among the 20 States reviewed here – the relative reliance each placed, by the various functions analyzed, on intergovernmental payments to local governments as a method of support (table 9). These 20 States accounted for approximately 78 percent of all intergovernmental payments to local governments for education in the 1967-70 period. By a large margin, New York and California used intergovernmental payments to local governments for education most extensively. California was the State making the most extensive use of intergovernmental payments as a financing method for highways, with Ohio, Michigan, and Illinois close behind in the period studied. For welfare purposes, New York and California funnelled the largest amounts of dollars to local governments. These relationships, however, reflect not only these States' preference for categories of support to localities, but also, of course, their capacity to render such support in terms of population and wealth.

If the data for the 20 States shown in table 9 are compared with the total intergovernmental transfers in table 8, a comparison of these selected states with the total for all 50 States can be made for three functions. In two of these functions – education and highways – the 20 largest States account for 75-80 percent of total State transfers to local governments. For welfare, on the other hand, the largest States account for almost 95 percent of total State transfers. Therefore, these data show that the 20 largest States tend to support local governments in their welfare burdens to a much greater extent than do the remaining 30 States.

Unfortunately, the definitional problems and the lack of program detail in most instances precluded developing a systematic and complete trace-through of either Federal or State Government funds to local governments on any more precise basis than the functional basis just presented. Although this aspect of the study provided considerable data, especially on the relationship of State

Table 9. State government payments to local governments, by function, selected states, 1967-70

Function	Distribution by amounts (million dollars)			
	1967	1968	1969	1970
Total	15,136	17,427	19,868	23,398
Education	9,243	10,344	11,488	13,030
Highways	1,506	1,652	1,672	1,927
Welfare	2,353	2,855	3,690	4,726
Local government support	1,300	1,676	1,783	2,515
Other	734	900	1,235	1,200
	Percent distribution			
Total	100.0	100.0	100.0	100.0
Education	61.1	59.4	57.8	55.7
Highways	9.9	9.5	8.4	8.2
Welfare	15.5	16.4	18.6	20.2
Local government support	8.6	9.6	9.0	10.5
Other	4.9	5.1	6.2	5.4

SOURCE: Tabulations by the Bureau of Labor Statistics from data of the Bureau of the Census.

aid to local governments, none of the information was narrow enough in focus or complete enough in detail to provide the basis for manpower impact analysis. It can be concluded reasonably that further research in the area of State aid to local governments would not be fruitful – at least from secondary data sources. Also, the experience and information gathered here would indicate an extremely difficult job to unravel these relationships even with a primary data collection effort.

The third phase of the manpower impact study shifted to a case study approach and singled out two very specific grant programs in selected geographic locations. The emphasis in this phase was the testing of a methodology for selected grant programs rather than a nationally representative study.

Phase 3: Manpower impact analysis

The third phase of the FY 1972 research and analysis effort on the manpower impact of Federal grants focused on selected programs. Emphasis in selection was placed on the size or rate of growth of the programs, coupled with the availability of detailed data, because of the constraints of time and resources for making the study. Consequently, three specific programs which met these criteria were selected for study: the school lunch program, Title I of the Elementary and Secondary Education Act, and the food stamp program. The first two are grant-in-aid programs; the third, a transfer payment program. The expenditure data required in these instances were obtained from published sources, but major problems arose in finding sufficient numbers of reports with the proper data which were consistent. Another significant problem in focusing the analysis at the program level lies in development of a detailed bill of goods, i.e., a breakdown of program expenditures by producing industry. In addition, the lack of detailed direct employment data broken down by occupation proved a significant problem for the programs selected.

Reports on file with the Bureau of the Census were used as the source documents for the case studies of the school lunch program and of Title I of the Elementary and Secondary Education Act. In total, 59 reports of State and local Boards of Education were carefully reviewed for the kind of expenditure detail required to prepare a bill of goods needed in the input-output system to derive employment estimates for the study. Documents from local education agencies proved to be the only accessible sources of published information with detail sufficiently disaggregated for this purpose.

School lunch program. The National School Lunch Act of 1946 initiated a program to assist States in safeguarding the well-being of children and to encourage the consumption of nutritious foods. In addition to its being a significant and well-established program, the school lunch program was chosen for study because of the large shares of State and local monies contributed, the catalytic effect of the Federal expenditure, and the program's wide geographic dispersion. The National School Lunch Program during fiscal 1970 channelled $168.0 million in cash payments and $201.4 million in surplus commodities to more than 76,500 schools around the country. State and local government shares, primarily from children's payments, amounted to an additional $1,652 million. During the peak month of 1970, lunches were provided to approximately 44 percent of the children in daily attendance at school, with the following breakdown of governmental expenditures.

Analyzing this program on a case study approach, New York City's school lunch program was evaluated in detail along with four other cities' and towns' of varying size and location, selected for comparative purposes. In addition, some 15 other cities and towns were reviewed on a less extensive basis as a rough check on the appropriateness of the expenditures patterns revealed by the more complete study of the five cities.

Actual 1970 expenditure for child nutrition, mainly for school lunch program, but including also school breakfast and other small related programs, follows:

Total child nutrition	$2,355.4
Federal expenditures	703.8
State and local administration	1.7
Federal contributions	702.1
Amount paid by state and local government (including payments by children)	1,651.1

These data were developed from published reports of local Boards of Education, State or local governments or agencies, and audit reports on file with the Bureau of Census and then were classified as to the appropriate industries of the 80-sector BLS input-output system. These data, or bills of goods, were then converted, for comparative purposes, to a billion dollars and run through the input-output system to generate employment estimates. These employment estimates were subsequently distributed to occupations through use of the BLS occupational matrix.

The school lunch program analysis was based on the data from five cities for the year 1970 – New York, New York; Fort Worth, Texas; Montgomery, Alabama; Williamsport, Pennsylvania; and Spokane, Washington. Using the expenditure patterns and occupational detail for these cities, analysis showed a total employment impact of over 140,000 jobs per billion dollars of expenditures for the school lunch program (table 10). Of these, 106,000 jobs were required directly on local government payrolls; more than 93 percent of these were jobs for service workers. Of the remaining government jobs, administrative and clerical workers each accounted for slightly less than three percent, "other" job classifications (such as maintenance workers) for less than one. The indirect impact represented 33,591 jobs in the private sector per billion dollars of spending on the school lunch program.[14]

Direct manpower impact. In 1970, the city of New York spent over $37 million on its school lunch program. More than $15 million of this amount represented food purchases, while $21 million, or better than

[14] To aid in developing a consistent data base, the publication *Financial Accounting for Local and State School Systems*, Bulletin 1957, No. 4, (Office of Education, 1966), was used.

Table 10. School lunch program: Total employment generated per billion dollars of expenditure

(Full and part-time jobs)

Type of employment	Number of jobs	Percent distribution of direct –	
		Jobs	Wage and salaries
Total employment	140,291		
Direct employment[1]	106,700	100.0	100.0
Administrative	3,094	2.9	5.6
Clerical	2,988	2.8	4.9
Food service workers	99,658	93.4	87.9
Other	960	0.9	1.6
Indirect employment	33,592	–	–

[1] Based on patterns for the 5 cities studied. See text for detail.

SOURCE: Bureau of Labor Statistics, Department of Labor.

56 percent of the total, went for the compensation of the administrative, managerial and operative food services personnel. In the other four cities studied – Fort Worth, Texas; Montgomery, Alabama; Williamsport, Pennsylvania; and Spokane, Washington, the proportion of nonfood expenditures going to direct compensation varied from approximately 37 percent to 46 percent. This difference may reflect in part the larger administrative effort required by a big city school system but probably it was caused in greater part by the more complete inclusion of data, in the New York City accounts, on overhead costs of personnel such as mechanics and electricians who work on cafeteria equipment. Greater differences in wage rates between a large urban area and smaller cities, as well as additional geographical differences, may be other significant factors contributing to the disparity.[15]

In the largest city studied, New York, 934 jobs were identified as being full-time (table 10). The balance consisted principally of hourly paid food service workers such as school-lunchroom aides or helpers. On the average, New York City probably had 3,881 full-time-equivalent employees in its school lunch program compared to an estimated total of 4,533 employees either full or part time. The largest number of full-time employees, 612, worked in food services, and these were primarily school lunch managers and assistants. Supporting administrative positions, such as those of accountants and administrative assistants, totaled 148 full-time jobs. Clerical occupations, such as those of typists and stockmen, accounted for 163 full-time jobs. Thirty-one miscellaneous jobs included nurses, watchmen, stationary engineers, and mechanics. Nearly all the hourly workers were classified as school lunch helpers or aides.

[15] See *Industry Wage Survey-Educational Institutions: Non-teaching Employees, October 1968 and March 1969*, Bulletin 1671 (U.S. Department of Labor, 1970).

Table 11. School Lunch Program: Illustrative occupational distribution of direct employment, New York City, 1970

Occupation	Employment
Employment, total	4,531
Professional and technical	6
Accountants	5
Nurse	1
Managers, officials and proprietors	143
School lunch managers	139
Administrative, nec	4
Clerical	143
Stenographers	20
Telephone operators	3
Clerical and kindred, nec	120
Mechanics and repairmen	15
Motor vehicle mechanics	3
Others, nec	12
Service workers	4,215
School lunch assistants, aides and helpers	4,207
Guards and watchmen	8
Others, nec	9

NOTE: Based on a count of the number of full-time and part-time jobs as described in the *Budget, Board of Education, City of New York*, 1970.

Even the largest of the other four cities studied spent only about 9.5 percent as much as New York City on direct wages and salaries. In general, the four cities' records showed payroll costs only for food services, clerical, and administrative personnel. Comparing just these three occupational categories for all five cities, New York had the largest proportion of clerical and administrative positions relative to food service workers. Spokane had the second largest proportion of clerical and administrative jobs, but nevertheless, had only about half the proportion of New York City. The other cities had slightly smaller proportions, especially of administrative jobs, than Spokane in relation to their food service occupations.

In the case of the four smaller cities, however, it was not possible, to reduce satisfactorily the dollars to numbers of jobs. Consequently, the task of estimating the direct job requirements for an analysis of the impact of the school lunch program proved to be extremely difficult. Even with a telephone followup of the cities covered, the only additional information readily uncovered provided full-time equivalents and not actual numbers of full- and part-time jobs. In general, based on the five cities studied as well as an earlier BLS study, these jobs employ workers less than 8 hours a day and last only the approximately 9 months of the school year. In our analysis, however, two half-time jobs are not considered one job, but two "full or part-time jobs;" consequently, a very high number of direct jobs is implied whenever part-time jobs are numerous. An additional factor in boosting the job count is the generally low average pay of these jobs. Obviously, an average pay of $2,000 per year will provide a higher job count per billion dollars than an average pay of $8,000 a year.

Direct employment estimates based on the five cities studied range from approximately 99,800 to 106,700 jobs per billion dollars of expenditures. The former figures reflect New York City employment relationships; the latter, additional input from the other four cities. This latter input, however, was useful only to the extent that it permitted estimates to be made of minimum, not actual, numbers of full- and part-time jobs. For comparative purposes, the estimated number of jobs on a full-time-equivalent basis per million dollars of expenditures in these five cities in 1970 was 75,350 (or about three-fourths of the level on full- and part-time basis). It seems reasonable to conclude, regardless of the difficulties encountered here, that the school lunch program generates a higher-than-average number of jobs per billion dollars of expenditures. In all likelihood, although enlarging the data base used in this analysis would increase confidence and might refine the numbers, nevertheless, it is concluded that the basic finding would probably not change.

Indirect manpower impact. Although it was obvious from the onset that the major impact of this Federal grant program would be felt—as with all education programs, and most State and local government functions for that matter – in a high proportion of direct government employment, the private sector employment was also of interest in this phase of the study. In order to make comparisons with both the total education sector and other sectors, the expenditures in the school lunch program of New York City and the other four cities were converted to a billion dollars of final demand. This basis permitted eliminating the influence of the relative amounts spent for various functions in different years, and allowed for easier comparisons of alternative levels or types of expenditures (table 11).

The indirect impact of the school lunch program, per billion of total expenditures, is relatively low because of the large portion of the total expenditures spent on direct compensation of staff. This (remaining) indirect impact of 33,592 jobs per billion of total expenditures for school lunch shows the impact of providing the goods or services used in implementing the school lunch program (table 12).[16] All this indirect impact is in the private sector. As might be expected, the majority of these jobs were in the agricultural sector and in the food processing industries supplying the foods for

[16] Because data for only five cities were used, the employment generated may not necessarily be representative of the nation as a whole.

Table 12. School lunch program: Employment generated in the private sector per billion dollars spent, by major sector and selected industry detail, 1970

Sector	Employment	Percent
Total indirect employment requirements	33,592	100.0
Agriculture, forestry and fisheries	11,492	34.2
Livestock and livestock products	5,764	17.2
Other agricultural products	4,967	14.8
Forestry and fishery products	127	0.4
Agricultural, forestry and fishery services	634	1.9
Mining	190	0.6
Construction[1]	322	1.0
Manufacturing	13,003	38.7
Food and kindred products	8,920	26.6
Other manufacturing	4,083	12.1
Transportation, communication and public utilities	2,123	6.3
Trade	1,955	5.8
Finance, insurance and real estate	809	2.4
Services[2]	3,698	11.0

[1]Includes maintenance and repair construction only.
[2]Total includes government enterprises.

NOTE: Based on the five selected cities as described in the text. Direct government employment is excluded. Employment is on total jobs concept which represents self-employed and unpaid family workers as well as wage and salary employees. The wage and salary employment is a count of the number of full-time jobs on establishment payrolls.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics.

the lunch program. Somewhat over 11,000, or one-third of the jobs generated in the private sector, were in the agriculture, forestry and fisheries sectors. More than 8,900 additional jobs were generated in the food and kindred products manufacturing sector. Of the remaining jobs, the largest numbers were generated in services, transportation and trade, in that order.

Among the occupations involved in indirect jobs generated by the school lunch program, professional and technical accounted for 4.4 percent of the total or 1,450 jobs (table 13). Managers, officials and proprietors represented 2,275 jobs, clerical workers 3,800, and salesworkers 1,000. Stenographers, typists, and secretaries, as well as machine operators, bookkeepers, and shipping and receiving clerks held the bulk of the clerical positions. Roughly 10 percent of the total indirect employment went to craftsmen, foremen and kindred workers, with mechanics and repairmen the largest group. There were 8,100 operatives, of whom 2,175 were drivers and deliverymen. Service workers composed only 5 percent of the total, nonfarm laborers 6 percent, or 2,000 workers. The occupational group most significantly affected was farmers and farm workers; this numbered 9,725 jobs or 29 percent of the total. This was due to the emphasis on school lunch funds in providing foodstuffs.

In summary, the school lunch program has an extremely high direct job impact, primarily because the jobs tend to be part-time and low paid. As a consequence, since most of the program expenditures are for staff compensation, the indirect impact of the purchases in the private sector tend to be very low. Still, from the data assembled here, it can be inferred that the 2.4 billion dollars of school lunch expenditures in 1970 supported about 367 thousand full- and part-time jobs, about 256 thousand of which would have been directly in the school systems. It should be noted, however, that the largest part of the expenditure came not from federal sources but from lunch payments by school children.

Elementary and Secondary Education Act, Title I. The Elementary and Secondary Education Act (ESEA) of 1965, of which Title I is the major component, directs local school districts across the land to use its Federal funding to expand and improve their educational programs by various means—which contribute particularly to meeting the special educational needs of educationally deprived children. Since its enactment, ESEA, with funds in excess of $5.5 billion expended in the first 5 years of the program, has become the largest single federal source of educational grants to local governments, to help meet the needs of several million educationally deprived pupils around the country, as follows:

	Title I expenditures: Aid to school districts (millions of dollars)
1970	$1,399.0
1971	1,499.9
1972 (estimated)	1,597.5

In the thousands of local educational agencies which have programs of assistance under Title I of ESEA, a wide variety of programs and services are funded. According to an Office of Education study,[17] an increasing part of Title I funds has been used recently for instructional programs and services, with much smaller amounts expended for plant maintenance, overhead, construction and equipment. However, in the first year of the program, construction and equipment accounted for nearly one-third of the expenditures, by contrast 3 years later, for less than 10 percent.

In the base year of Title I, expenditures for instructional programs and student services were 59 percent of the total; within 3 years, almost four-fifths. Since the illustrative studies of Title I made by BLS were targeted on 1970, (the fifth year of the program) expenditure patterns developed were more nearly representative of

[17] *Education of the Disadvantaged, FY 1968,* (Office of Education, April 1970) pp. 90-92.

Table 13. School Lunch Program: Employment generated in the private sector per billion dollars spent, by selected occupation, 1970

Occupation	Employment generated
Employment, total	33,250
Professional and technical	1,450
Engineers	225
Medical and other health workers	150
Veterinarians	50
Natural scientists	150
Technicians (except medical and dental)	250
Accountants	125
All other professionals and technical	550
Managers, officials, and proprietors	2,275
Clerical	3,800
Stenographers, typists, and secretaries	850
Office machine operators	200
Accountants	175
Bookkeepers	300
Mail carriers	100
Postal clerks	100
Shipping and receiving clerks	200
Telephone operators	100
All other clerical	1,775
Salesworkers	1,000
Craftsmen	3,250
Construction craftsmen	375
Carpenters	100
Electricians	100
Foremen	800
Metalworking craftsmen (except mechanics)	275
Machinists	150
Mechanics and repairmen	925
Motor vehicle mechanics	175
Printing trade craftsmen	100
Bakers	300
All other craftsmen	475
Operatives	8,100
Drivers and deliverymen	2,175
Drivers, bus, truck and tractor	1,300
Delivery, routemen	875
Semiskilled metal work occupation	325
Welders and flame cutters	125
All other operatives	5,600
Service workers	1,650
Guards and watchmen	150
Food service workers	50
Janitors	150
All other service workers	1,300
Laborers, except farm	2,000
Farmers and farm workers	9,725

NOTE: Employment totals have been rounded to nearest 100, and occupations and occupational group totals have been rounded to nearest 25; thus details may not add up to totals. Included are small amounts of employment generated in various industries, but not distributed by occupations. Excluded is direct government employment.

the instructional and student services type of activity, than of the construction and equipment. Nevertheless, this change clearly points up the need to reassess the manpower impact of programs periodically. Certainly, as in this case, a number of Federal programs will have different impacts on employment over time, as expenditure patterns shift.

A similar approach to that of the study of the school lunch program was utilized for this one of Title I of the Elementary and Secondary Education Act. Five cities were analyzed, with special attention paid to the largest city selected—Chicago—because of the wider range of data available. Two of these five cities were also among those studied for the school lunch program—Spokane, Washington, and Fort Worth, Texas. The remaining cities were Charlotte, North Carolina, and Gadsden, Alabama. Again, the data were developed from published reports of local education agencies or State governments and agencies as well as from audit reports on file with the Bureau of the Census. Using the Federal Office of Education's accounting manual[18] and the *Standard Industrial Classification Manual*, the expenditures data developed were classified into the industries of the 80 industry sector BLS input-output system. To estimate the indirect employment impact, the current-dollar 1970 data were deflated, industry by industry, into 1958 dollars to make them consistent with the interindustry employment model used. Again, to facilitate analysis, the expenditures were converted to a billion-dollar basis. In general, the original expenditures were more widely dispersed into more industries than in the school lunch program study.

The total employment impact of Title I, based on the data from the 5 cities in 1970, amounted to 220,717 jobs per billion dollars of expenditures. Of this total, more than 212,000 were jobs directly on the payrolls of local educational agencies (table 14). As might be expected, the largest number—close to 200,000—were classified as instructional, including both teachers and teacher aides. Slightly less than 6,000 were clerical in nature, with administrative and other jobs making up the balance. The indirect employment impact was far smaller—only slightly more than 8,000 jobs.

Direct manpower impact. The largest city in the Title I survey, Chicago, spent nearly $19 million dollars in 1970 on its federally supported programs to help educationally deprived youngsters. Almost 87 percent of this amount was for direct compensation of school person-

[18] *Financial Accounting for Local and State School Systems* (Office of Education, 1966).

Table 14. Title I, Elementary and Secondary Education Act: Employment generated per billion dollars spent with selected occupational groupings, 1970

Distribution of employment	Number of jobs	Percent distribution of direct—	
		Jobs	Wage and salaries
Total employment	220,717		
Direct employment	212,600	100.0	100.0
Administrative	2,976	1.4	4.0
Clerical	5,953	2.8	3.8
Instructional	199,844	94.0	90.2
Other	3,827	1.8	2.0
Indirect employment	8,117	—	—

NOTE: Based on patterns for the five cities studied. See text for details.

SOURCE: Bureau of Labor Statistics

nel. In the other four cities studied, the proportions of direc. compensation to total expenditures varied from 89.3 percent to 94.3 percent. This compares to a national proportion in all education, less structures, of 80.6 percent for compensation as a proportion of total educational expenditure. Since the Title I programs studied focused primarily on instructional program enrichment and pupil services, the higher compensation content does not seem surprising. And, since instructional services require larger numbers of more highly paid personnel than food services, the higher direct compensation content of Title I programs compared to the School Lunch Program appears reasonable.

Occupational detail developed for Chicago, the largest city studied in the Title I impact research, showed an estimated 4,328 job slots generated directly on government payrolls (table 15). Because of the extremely large number of summer employment opportunities provided,[19] as well as the allocation of only a part of a person's time and pay to Title I, the gap between the average number of full- and part-time jobs and the full-time equivalents was unusually large. For example, in Chicago the number of full-time equivalent jobs generated directly on its own payroll by Title I funding was about 2,280 compared with 4,327 full- and part-time jobs, thus indicating that each job was on the average little more than one-half of a full-time job. The bulk of the jobs was instructional—for teachers and teacher aides—with administrative and clerical occupations the next larger groups, yet representing significantly smaller proportions. Based on the Office of Education study cited earlier, this heavy representation of instructional personnel conforms to the type of Title I project selected most frequently by local educational agencies across the Nation.

[19] *A Report on the Third Year of Title I, ESEA* (Office of Education, 1969).

Table 15. Title I, Elementary and Secondary Education Act: Illustrative occupational distribution of direct employment, Chicago, 1970

Occupation	Employment
Employment, total	4,328
Professional, technical and kindred	1,854
Teachers	1,810
Other n.e.c.	44
Clerical and kindred	2,429
Teacher aides and assistants	2,312
Clerical	117
Other, n.e.c.	45

SOURCE: Based on a count of the number of full-time and parttime jobs as described in the *Annual Budget, Board of Education, Chicago, Illinois, 1970.*

The study's detail for the four smaller cities did nothing to alter the general pattern of a large number of staff positions—frequently not full-time and often for summer programs—found in the data reviewed for Chicago. Follow-up telephone contacts with these four cities provided data of limited use in altering the relationship of full- and part-time jobs established by the information for Chicago. Office of Education statistics indicate approximately 200,000 staff positions or job slots are attributable to Title I during the regular school year and even slightly larger number of staff positions in summer programs.[20] Needless to say, these positions frequently were not full time and often involved the same person's holding two positions during the year.

The number of jobs directly on government payrolls in the five cities researched ranges from approximately 204,000 to more than 212,600 per billion dollars expenditure. The lower figure is based on rough approximation of the smallest number of full- and part-time jobs possible in the cities studied. The higher figure is based only on the relationship of full- and part-time jobs in Chicago for its Title I program. If the Title I jobs studied here were reduced solely to a full-time-equivalent basis, there would be approximately 117,000 jobs. Nevertheless, the relatively large number of direct jobs generated does not seem inconsistent with the Title I program operation. Although further data input would be desirable, the direct employment impacts through instructional salaries would most certainly remain very high.

Indirect manpower impact. Because of the extremely large and relatively highly paid direct employment of the Title I program (compared to that of the food service employees by the school lunch program) the indirect employment generated amounted to less than 8,200 jobs per billion dollars of expenditure (table 16). As a result, the job generation in the private sector resulting from purchases of goods or services, other than compensation

[20] *Ibid.*

Table 16. Title I, Elementary and Secondary Education Act: Employment generated in the private sector, per billion dollars spent, by major sector and selected industry detail, 1970

Sector	Employment	Percent
Total indirect employment requirements	8,117	100.0
Agriculture, forestry and fisheries	117	1.4
Mining	69	0.9
Construction[1]	770	9.5
Manufacturing	2,351	29.0
Printing and publishing	1,029	12.7
Transportation, communication and public utilities	1,195	14.7
Trade	970	12.0
Finance, insurance and real estate	378	4.7
Services[2]	2,267	27.9
Business services	1,285	15.8
Auto repair and services	263	3.2

[1] Includes maintenance and repair construction only.
[2] Total includes government enterprises.

NOTE: Based on the five cities described in the text. Direct government employment excluded. Employment is a total job concept which represents self-employed and unpaid family workers as well as wage and salary employees. The wage and salary employment is a count of the number of full-time and part-time jobs on an establishment basis.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

of employees, for the Title I program was relatively low. For the five cities surveyed, a billion dollars worth of expenditures on Title I programs in 1970 generated 8,117 jobs in the private sector of the economy. Of these jobs, close to three-fifths were in the manufacturing and services sectors (see table 16). On an industry basis, printing and publishing together with business services accounted for the largest individual shares with transportation, trade and maintenance construction providing the majority of the other jobs generated by Title I expenditures.

In terms of occupations, professional and technical workers represented 1,250 positions, of the approximately 8,100 private jobs generated by the Title I program. Engineers, accountants, and draftsmen accounted for the largest numbers, with 75 teaching positions indirectly generated. In the occupations of manager, official, and proprietor, 900 positions were provided; in the clerical, operatives totaled 1,625, of these, 550 were drivers and deliverymen; 125, semiskilled metalworkers. Only 325 service worker positions were generated by Title I, with 50 of these in protective service and 50 hired as janitors. Finally, 350 nonfarm laborers and 100 farmers and farm workers found employment under the impact of Title I. (See table 17.)

In summary, the Title I analysis revealed a job impact pattern with even more direct employment in school districts than that of the school lunch program. From the data presented here, it can be estimated that the 1.3 billion of expenditures for Title I of the Elementary and

Table 17. Title I, Elementary and Secondary Education Act: Employment by selected occupation generated in the private sector, per billion dollars spent, 1970

Occupation	Employment generated
Total[1]	8,100
Professional and technical	1,250
Engineers	250
Teachers	75
Scientists	50
Technicians (except medical and dental)	250
Draftsmen	125
Accountants	200
Managers, officials and proprietors	900
Clerical	1,650
Stenographers, typists, and secretaries	425
Office machine operators	50
Bookkeepers, hand	125
All other clerical	1,050
Sales workers	475
Craftsmen	1,450
Construction craftsmen	350
Foremen	175
Metalworking craftsmen (excluding mechanics)	75
Mechanics and repairmen	450
Motor vehicle machines	200
Printing trades craftsmen	225
Compositors and typesetters	125
All other craftsmen	175
Operatives	1,625
Drivers and deliverymen	550
Drivers, bus, truck, and tractors	500
Semiskilled metalwork occupation	125
All other operatives	950
Service workers	325
Guards and watchmen	50
Janitors	50
All other service workers	225
Laborers, except farm	350
Farmers and farm workers	100

[1] Excludes small amounts of employment generated in various industries but not distributed by occupation. Total rounded to nearest 100. Occupational groups rounded to nearest 25.

NOTE: Direct government employment is excluded.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics.

Secondary Education Act in 1970 supported about 285 thousand jobs, some 275 thousand of which would have been those of direct school staff personnel.

Comparison with total education. It must be cautioned, once more, that the patterns developed in this study for the Title I program as well as for the school lunch program, may vary from the national average; as a result, they should be construed only as being representative of the cities examined. Comparison of employment generated by these two programs with the pattern from total educational activities of State and local govern-

ments reveals that each of these special programs has a larger direct government job impact per billion dollars than total education alone (table 18). Educational activity of State and local governments provided about 98,800 direct government jobs per billion dollars in 1970, while the school lunch program accounted for 106,700 slots and the Title I program 212,600 direct jobs. In the private sector, the school lunch program provided more jobs than educational alone – approximately 33,600 to 20,500. The Title I program, however, because of its large proportion of direct government jobs, generated only slightly over 8,000 jobs altogether in the private sector per billion dollars. Principally because of its large purchases of food and food products, the school lunch program generated far more employment in the agricultural and manufacturing sectors than education as a whole. On the other hand, since so much of the Title I funds were spent on compensation, its job impact in every major sector was lower than for education overall.

Food stamp program. The Food Stamp Act was passed in 1964 to improve the diet of families with limited resources. Sufficient food coupons to purchase an adequate diet are issued to certified needy families with the amount the families pay dependent on their size and income as well as on other factors. The families use the coupons in retail stores for purchase of foodstuffs; the food stores redeem the coupons at face value at commercial banks; and then, the coupons flow through regular banking channels to Federal Reserve banks for redemption. The food stamp program was in operation in more than 2,000 local areas, usually counties, in fiscal 1971, and served more than 10.5 million participants. During 1971, the value of coupons issued exceeded $2.7 billion, of which almost $1.2 billion was paid by the participants. The financial breakdown of the program is as follows:

	FY 1971 (thousand dollars)
Total food stamp program	$2,765.5
Federal expenditures	1,576.9
Federal administration	17.9
State and local administration	36.0
Value of bonus coupons – Federal share	1,523.1
Amount paid by participants	1,188.6

It is clear from the above data that over 98 percent of the total amounts spent–by Federal Government and participants – go toward the coupons and hence, toward purchases of food items. At the same time, since the food stamp program is an income security program, essentially composed of transfer payments to indi-

Table 18. Selected programs and State and Local government education: Employment generated per billion dollars, spent, 1970

Sector	State and local government education[1]	School lunch program (five cities)	Title I Program (five cities)
Total employment	119,328	140,292	220,717
Government, direct	98,831	106,700[2]	212,600[2]
Total indirect	20,497	33,592	8,117
Agriculture, forestry and fisheries	1,318	11,492	117
Mining	422	190	69
Construction[2]	1,495	22	770
Manufacturing	8,117	13,003	2,351
Transportation, communication and public utilities	3,041	2,123	1,195
Trade	1,609	1,955	970
Finance, insurance and real estate	952	809	378
Services	3,543	3,698	2,267
	Percent distribution of indirect employment		
Total indirect employment	100.0	100.0	100.0
Agriculture, forestry and fisheries	6.4	34.2	1.4
Mining	2.1	0.6	0.9
Construction[2]	7.3	1.0	9.5
Manufacturing	39.6	38.7	29.0
Transportation, communication and public utilities	14.8	6.3	14.7
Trade	7.8	5.8	12.0
Finance, insurance, and real estate	4.6	2.4	4.7
Services	17.3	11.0	27.9

[1]Excludes new construction.
[2]For explanation of this figure, see text.

NOTE: In terms of 1970 prices and productivities. For identification of cities, see text.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor.

viduals, it is even more difficult to assess its manpower impact than it is for a grant-in-aid. The employment effects, aside from the relatively small administrative staffs involved, rest entirely on purchases of food or related items made by participants with the coupons. Using information from the latest interindustry employment table and assuming these expenditures are largely directed to food supplies, the $2.8 billion expended in fiscal 1971 would have supported about 237,000 jobs or about 84,600 per billion dollars spent on the stamps. The largest employment impact would be in the wholesale and retail trade sector, which accounted for almost 97,000 of the jobs. The food manufacturing sector impact would amount to approximately 37,700 additional jobs; the livestock and agricultural products sector, another 45,500; and transportation and warehousing, slightly more than 10,000.

Nevertheless, the question remains as to the extent to which food stamps resulted in increased food purchases or alternatively in consumer purchases shifted to nonfood items. To the extent that stamps simply replace existing purchases, there would be no additional manpower impact. However, if stamps replace money which would have been spent on food and shift it to other purchases, then the impact would result in other sectors. It was felt that a further tracing of food stamp impacts would not be profitable because of these and related questions.

Conceptually, these food stamp purchases are included in the national income and product accounts as a part of total personal consumption expenditures for which employment impacts are periodically calculated.[21] In the future, it is hoped that consumption expenditures can be disaggregated by type of income source and from this a pattern of purchases can be developed for a low-income group closely representing recipients of these stamps. The BLS consumer expenditures survey is currently being updated and should provide a good future basis for determining expenditure patterns of low-income families such as would be characteristic of food stamp recipients.

Conclusion: Problems and prospects

In fiscal 1972, there were nearly 400 grant programs providing more than 34 billion dollars worth of aid. It is important to note, however, that a relative few of these account for a significant portion of the total. For example, five programs – highways, medical assistance, aid to families with dependent children, the Elementary and Secondary Education Act and old age assistance – alone account for more than 40 percent of the Federal Government's dollar outlays for grants. Moreover, there were direct purchases of goods and services for defense and nondefense costing approximately $100 billion dollars. Total transfer payments were at a rate close to $80 billion a year.

In addition to the impact on manpower supply and demand balance created by these billions of Federal dollars, Federal regulatory, taxing, and trade policies can significantly affect the direction of national output in a more indirect and complex manner. Lending or loan guarantee functions, for example, often can play a significant role in determining the level of residential construction activity. Regulatory agencies, in setting pollution control standards, may affect product and industry demand. Although such policy standards may have as significant an impact as Federal funding on the level and structure of employment, the relationships are frequently subtle and extremely complex to measure.

A complete manpower impact system, of course, should be able to assess the potential for job creation or reduction of various government programs and/or policies, both in the aggregate and in some detail. The detail (industry, occupation and geographic distribution) should be sufficient to identify major problem areas of supply-demand imbalances resulting from Federal programs, covering both "bottlenecks" caused by skill shortages at the beginning of a program and significant unemployment effects caused by the program's curtailment or modification afterwards. This is particularly true if initiation of a manpower program is directed toward affecting the imbalances. The information developed should provide the basis for changes in Federal programs or manpower responses designed to correct those supply-demand imbalances which are not readily brought into balance by the normal operation of labor market forces.

Such a system does not exist at present, although the analytical framework for it has been developed as a by-product of the on-going research activities of the Bureau of Labor Statistics in its economic projections and occupational outlook programs. The thrust of the contract in which this study originated was in the areas of data sources and the suitability of data collected for manpower impact assessment purposes. After the initial surveys of Federal expenditures data for the *Compilation of Federal Grant Programs for State and Local Governments* and the data research at the Bureau of the Census, which focused on State and local governments' financial relationship, the scope of the research was narrowed to a program basis.

Although the first two phases of this research accounted for a large part of the total effort—and

[21] Eldridge and Cochran, *op. cit.*

provided data on intergovernmental expenditures–it was the experience gained in the case studies of the school lunch program and Title I of the Elementary and Secondary Education Act which should prove useful in undertaking future manpower impact studies. Gathering the detailed expenditure data necessary for the bill of goods provided an excellent insight into the problems of data collections. Problems were also met of using secondary data because of reporting differences from one city to another, as well as among different levels of government. The most difficult problem encountered in the third phase of the research was the paucity of detailed employment and occupational data available from these secondary sources. It appears that additional work in the form of at least a limited survey by means of personal interviews in several cities would be required for some grant programs before employment and staffing patterns for the direct jobs on government payrolls could be published with confidence.

The employment impacts of both the school lunch program and Title I programs should be considered tentative and only generally indicative of the magnitude of employment actually required, since the number of cities analyzed was relatively small. Future studies will attempt to provide a broader base, although this will involve a greater expenditure of manhours. A major problem in tracing grant programs exists in following through the State level to final spenders. Resolution of this difficulty will depend upon the kind of data available in each individual program area. Nevertheless, this phase of the research at least provided information about manpower impacts on a program basis for two selected programs and explored, as well, the data needs for a manpower assessment system that could be used to develop a system for the manpower assessment of Federal programs. The study still leaves untested the types of data required and the system needed to evaluate the manpower impact of Federal policy changes.

Appendix A. Employment by Industry

Table A-1. Indirect employment generated per billion dollars spent through selected grants-in-aid,[1] by industry, 1970

Industry number and title	Title I program[2]	School lunch program[2]
Total indirect employment	8,117	33,592
Agriculture, forestry and fisheries	117	11,492
1. Livestock and livestock products	38	5,764
2. Other agricultural products	60	4,967
3. Forestry and fishery products	9	127
4. Agricultural, forestry and fishery services	10	634
Mining	69	190
5. Iron and ferroalloy ores mining	2	7
6. Nonferrous metal ores mining	6	15
7. Coal mining	19	48
8. Crude petroleum and natural gas	28	77
9. Stone and clay mining and quarrying	11	32
10. Chemical and fertilizer mineral mining	3	11
Construction	770	322
11. New construction	–	–
12. Maintenance and repair construction	770	322
Manufacturing	2,351	13,003
13. Ordnance and accessories	–	1
14. Food and kindred products	25	8,920
15. Tobacco manufactures	1	2
16. Broad and narrow fabrics, yarn and thread mills	14	58
17. Miscellaneous textile goods and floor coverings	7	21
18. Apparel	5	33
19. Miscellaneous fabricated textile products	5	47
20. Lumber and wood products, except containers	77	132
21. Wooden containers	3	62
22. Household furniture	3	4
23. Other furniture and fixtures	2	2
24. Paper and allied products, except containers	198	343
25. Paperboard containers and boxes	25	302
26. Printing and publishing	1,029	386
27. Chemicals and selected chemical products	85	249
28. Plastics and synthetic materials	19	49
29. Drugs, cleaning and toilet preparations	17	104
30. Paints and allied products	23	20
31. Petroleum refining and related industries	15	52
32. Rubber and miscellaneous plastic products	58	185
33. Leather tanning and industrial leather products	1	2
34. Footwear and other leather products	3	5
35. Glass and glass products	14	267
36. Stone and clay products	41	154
37. Primary iron and steel manufacturing	56	238
38. Primary nonferrous metals manufacturing	36	89
39. Metal containers	4	274
40. Heating, plumbing and structural metal products	47	40
41. Stampings, screw machine products and bolts	19	127
42. Other fabricated metal products	34	102
43. Engines and turbines	5	8
44. Farm machinery and equipment	5	28
45. Construction, mining and oil field machinery	5	9
46. Materials handling machinery and equipment	2	3
47. Metalworking machinery and equipment	16	32
48. Special industry machinery and equipment	12	15
49. General industrial machinery and equipment	10	29
50. Machine shop products	19	41
51. Office, computing and accounting machines	43	16
52. Service industry machines	29	211
53. Electric industrial equipment and apparatus	25	69
54. Household appliances	7	33
55. Electric lighting and wiring equipment	15	28
56. Radio, television and communication equipment	53	18
57. Electronic components and accessories	22	21

See footnotes at end of table.

Table A-1. Indirect employment generated per billion dollars spent through selected grants-in-aid,[1] by industry, 1970—Continued

Industry number and title	Title I program[2]	School lunch program[2]
58. Miscellaneous electrical machinery, equipment and supplies	8	15
59. Motor vehicles and equipment	24	31
60. Aircraft and parts	5	9
61. Other transportation equipment	8	31
62. Scientific and controlling instruments	33	24
63. Optical, ophthalmic and photographic equipment	36	12
64. Miscellaneous manufacturing	103	50
Transportation, communications and public utilities	1,195	2,123
65. Transportation and warehousing	824	1,624
66. Communications, except radio and TV broadcasting	171	241
67. Radio and TV broadcasting	60	64
68. Electric, gas, water and sanitary services	140	194
Wholesale and retail trade	970	1,955
Finance, insurance and real estate	378	809
69. Finance and insurance	212	660
70. Real estate and rental	166	149
Service and miscellaneous	1,990	3,334
71. Hotels, personal and repair services, except auto	177	1,433
72. Business services	1,285	1,382
73. Research and development	2	8
74. Automobile repair and service	263	203
75. Amusements	131	62
76. Medical, educational services and nonprofit organizations	132	246
Government enterprises	277	364
77. Federal government enterprises	186	215
78. State and local enterprises	91	149

[1] 1970 prices and productivities. Employment is shown of wage and salary workers, and selfemployed and unpaid family workers.
[2] Based on the expenditure patterns of the five cities identified in the text for each program.